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Use of Asbestos-Cement Pipe

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16. ABSTRACT

Concerning the use of asbestos-cement (A/C) pipe for the distribution of drinking water, the status of the ingested asbestos health research underway in the U.S. Environmental Protection Agency is briefly described. At the present time there are no U.S. standards for asbestos in drinking water. The Agency has initiated regulatory proceedings to control A/C pipe as a result of a citizen's petition granted by the Administrator on Oct. 18, 1979. This means the Agency included A/C pipe in its overall assessment of asbestos as a toxic material. The primary reason for concern about drinking water containing asbestos fibers is the association between occupational asbestos exposure and gastrointestinal cancer shown in a number of occupational epidemiology studies. Although the asbestos worker is exposed to airborne asbestos it has been clearly demonstrated that a high percentage of inhaled fibers deposited in the lung are cleared and swallowed. So, they are also exposed to ingested fibers. There have been a number of recent studies which have shown that asbestos fibers can penetrate the digestive tract and even are excreted through the urine. Available studies and ongoing research are reviewed.

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Letters to the Editor

Readers are invited to submit letters for publication in this department. Submit to Doris Flournoy, Executive Editor, Journal of Occupational Medicine, 150 N. Wacker Drive, Chicago, IL 60606. Letters should be typewritten, double spaced and should be designated "For Publication."

Use of Asbestos-Cement Pipe

To the Editor: In the October, 1980 issue of the *Journal of Occupational Medicine* a question was answered in the Occupational Medicine Forum concerning the use of asbestos-cement pipe for the distribution of drinking water. For your readers' information I would like to briefly describe the status of the ingested asbestos health research underway in the U.S. Environmental Protection Agency.

At the present time there are no U.S. standards for asbestos in drinking water. The Agency has initiated regulatory proceedings to control asbestos-cement pipe as a result of a citizen's petition granted by the Administrator on October 18, 1979. This means that the Agency included asbestos-cement pipe in its overall assessment of asbestos as a toxic material. The primary reason for concern about drinking water containing asbestos fibers is the association between occupational asbestos exposure and gastrointestinal cancer shown in a number of occupational epidemiology studies. Although the asbestos worker is exposed to airborne asbestos it has been clearly demonstrated that a high percentage of inhaled fibers deposited in the lung are cleared and swallowed. So, they are also exposed to ingested fibers. There have been a number of recent studies which have shown that asbestos fibers can penetrate the digestive tract and even are excreted through the urine.

Animal studies as yet have not been very helpful in determining the health risk of asbestos in drinking water. A large-scale asbestos feeding study is currently underway with rats and hamsters. Final results are not expected until 1981.

Human epidemiology studies in Duluth, Minnesota, and Quebec, Canada, have not concluded that any cancer risk is associated with asbestos fibers in water. A relationship between certain cancers and drinking water containing asbestos fibers was found in California. This relationship appeared to be independent of income, asbestos occupation and mobility. Studies continue in the Pacific Northwest and Pensacola, Florida. Some results in both areas are expected next summer.

The first study in Connecticut of gastrointestinal cancer rates from 1935 to 1974 gave no indication of cancer rate changes which would be considered associated with the use of A/C pipe. A second study in Connecticut used additional data on asbestos measurements in Connecticut town water supplies and more powerful statistical methods. The second study also showed no evidence of increased cancer risk. The California epidemiology study by Kanarek in 1980 does show a possible link between ingestion of asbestos through drinking water and cancer. The study cannot be considered definitive but suggests further study is needed.

That "the use of asbestos-cement water pipe will not automatically lead to asbestos fibers being released into the water" is quite accurate. However, if asbestos-cement pipe is used in areas where the water is terribly corrosive, the pipe will be severely deteriorated. An article by Buelow et al, published in the *Journal of the American Waterworks Association,* April, 1980, describes the importance of having a noncorrosive water when using asbestos-cement pipe. If the town of the inquiry has a stable drinking water, uses a connection tapper which discharges the tapping debris, and follows the approved practice for installation cleaning as you described, there should be no exposure to asbestos fibers from the drinking water.

The Agency's present policy toward asbestos-cement pipe and corrosive waters was indicated in the *Federal Register,* August 27, 1980, as follows: "deterioration of asbestos-cement pipe in contact with corrosive waters will result in economic losses to the purveyor and high levels of asbestos fibers in the drinking water. The potential health effects associated with the presence of asbestos fibers originating from distribution systems are under study. Prior to the completion of the studies, the Agency encourages utilities to take appropriate corrosion control and other measures to minimize levels of asbestos fibers in the drinking water."

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A Misallocation Obscures

To the Editor: The ultimate objective of studies of mortality in industrial occupational cohorts is to identify hazards in the work environment which result in excess mortality from some cause or class of causes of death. In such studies evidence attesting to the existence of possible health hazards is often presented as positive dose-response gradients in standardized mortality ratio (SMR) results categorized by exposure level or cumulative exposure.[1]

A letter to the editor recently published in *JOM*[2] illustrated the potential impact of misallocation of

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